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DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
WASHINGTON NAVY YARD BLDG 210
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COMSC INSTRUCTION 4730.9

Subj: MAINTENANCE OF HYDRAULIC OIL SYSTEMS IN MSC SHIPS

1. Purpose. To establish a program to monitor and maintain hydraulic oil systems aboard MSC ships.

2. Applicability. This instruction applies to all USNS ships.

3. Background. To assure mission readiness of MSC ships, it is imperative that ship's and sponsor equipment be maintained in good working order. Much of the critical ship's and sponsor equipment includes hydraulic systems. Hydraulic systems require high quality, expert maintenance to assure long term and trouble free operation. The Shipboard Automated Maintenance Management (SAMM) system provides machinery history and preventive maintenance schedules. Problems in the past with hydraulically operated equipment have been caused mostly by improper or inadequate installation, maintenance and repair. Failure of hydraulically operated equipment may lead to aborting ship's mission and/or injury or death of ship's personnel. Through a worldwide lubricating oil contract, MSC provides its ships with high quality hydraulic fluids specifically chosen for each equipment. If the condition of the oil and the machinery is properly monitored and maintained, operational readiness can be enhanced.

4. Action. MSC administrative commanders shall establish a monitoring and maintenance program for hydraulically operated equipment. This equipment includes, but is not limited to, anchor windlasses, mooring winches, oceanographic winches, U and A frame systems, steering gear, hatch cover operators, UNREP winches, sliding watertight doors, ram tensioners, and telemotors. The following guidelines shall be used:

a. Procure all hydraulic oils only through the MSC worldwide lubricating oil contractor, unless otherwise directed.

b. Use only the hydraulic oils listed in the lube oil chart supplied by the current lube oil contractor.

c. After initial installation and/or repair of hydraulic equipment, flush hydraulic systems according to the manufacturer's procedures. The ship's chief engineer shall be responsible for assuring that work done by ship's force or industrial assistance is in accordance with the manufacturer's requirements.

d. Use filter buggies when filling equipment sumps from storage tanks or barrels. Exercise care when using hydraulic oil from tanks or previously opened containers. Since there exists the possibility that condensate and particulates have contaminated the oil.

e. One filter buggy should be provided for each type of hydraulic oil. If a filter buggy is to be used for a multitude of oils, flush it with the same type oil as in the equipment sump prior to use.

f. Periodically inspect all hydraulic systems for contaminated oil. Sample at least quarterly. Use the SAMM sampling schedule where SAMM is installed. Sampling methods are described in the equipment technical manuals. If the sample is not "clear and bright", purify or replace the oil as appropriate. Each ship should be provided with a test kit under the lubricating oil contract. Test kits allow for preliminary testing of visually deficient oil. Send hydraulic oil samples to the lube oil contractor for final testing and analysis.

g. Use filter buggies for periodic removal of water and particulate contamination from equipment sumps. Two different filter cartridges are needed; one for water and one for particulates. Filter buggies with 1/3 HP motors need to have the filter elements alternated for both water and particulate removal. Filter buggies with 1 and 1-1/2 HP motors can be upgraded to fit both type elements simultaneously. Upgrade kits are available from the filter buggy manufacturer for simultaneous purification. Filter elements are available from the filter buggy manufacturer or through the Navy supply system.

h. All new procurements of filter buggies shall be of the dual filter type.

i. Do not use filter buggies for purifying sumps of closed loop systems such as the new Navy Standard Transmission UNREP winches. Unless extreme care is exercised, the vent bellows can be destroyed. When the oil condition warrants, replace the oil in closed loop systems with new oil.

j. When excessive contamination is found, manually clean and flush the sump and system piping. Assure that all impurities are removed from the system. Use only lint-free cloths to clean and dry the sump prior to refilling. Flush the system according to the manufacturer's recommendations.

k. Record in the Machinery History Module of SAMM whenever a hydraulic oil system is purified, filtered or cleaned. Use SAMM to monitor maintenance of the equipment. Maintain a record of all samples such that trend analysis of the hydraulic oil can be made. Unless a record of filtering or purifying oil is kept, the trend analysis may be misleading.

D.F. CHANDLER
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List I & II (Case A)
SNDL 41B (MSC Area Commands)
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T-103 (Operators & Masters, contract-operated TAGOS)